

WHAT IS CLAIMED IS:

1. A method for producing a structured composite material having a plurality of apertures, the method comprising the steps of:

forming a first layer having a first shrinkage extent;

5 forming a second layer having a second shrinkage extent different from the first shrinkage extent;

bonding the second layer to the first layer to form a composite material;

forming the plurality of apertures through the second layer; and

10 shrinking at least one of the first layer and the second layer to produce the structured composite material.

2. The method of claim 1, wherein the plurality of apertures are formed through the second layer using one of pin embossing, slitting, laser embossing and thermal embossing.

15 3. The method of claim 1, wherein the plurality of apertures are formed through the second layer prior to bonding the second layer to the first layer.

20 4. The method of claim 1, further comprising the step of forming the plurality of apertures through the first layer.

5. The method of claim 1, further comprising the step of heating the composite material to affect shrinkage of at least one of the first layer and the second layer.

5 6. The method of claim 5, wherein the composite material is heated using one of infrared, hot air, microwave, a cure oven and a through-air-bonder.

10 7. The method of claim 1, wherein the second layer is bonded to the first layer by one of thermal bonding, pin bonding, point bonding and differential speed bonding.

8. The method of claim 1, further comprising the step of stretching the second layer before the second layer is bonded to the first layer.

15 9. The method of claim 8, wherein the second layer is stretched in a machine direction to about 1.5 to about 6.0 times an initial length.

10. The method of claim 8, wherein the second layer is stretched in a machine direction to about 2.0 to about 4.0 times an initial length.

20 11. The method of claim 1, wherein the apertures formed each have a diameter of about 100 microns to about 10,000 microns.

12. The method of claim 1, wherein the apertures are formed by producing a plurality of slits through at least the second layer, and opening each slit to form a corresponding aperture.

5 13. The method of claim 12, wherein the slits are formed using expanded metal plates.

10 14. The method of claim 12, wherein the slits are formed in one of a machine direction, a cross machine direction and an angular direction.

15 15. The method of claim 12, further comprising the step of forming slits in the first layer.

16 16. The method of claim 1, wherein the first layer comprises a polypropylene polymer.

17. The method of claim 1, wherein the second layer comprises an ethylene-polypropylene random copolymer.

20 18. The method of claim 1, wherein the second layer comprises a film.

19. The method of claim 18, wherein a filler is added to the film.

20. The method of claim 19, wherein the filler is selected from the group consisting of clay, calcium carbonate, diatomaceous earth, titanium dioxide, and talc.

21. The method of claim 18, wherein the first layer comprises a nonwoven web.

22. A method for producing a structured heterogenous material having a plurality of apertures for accommodating passage of fluids through the structured heterogeneous material, the method comprising the steps of:

providing a first homogeneous component having a first shrinkage extent;

providing a second heterogeneous component having a second shrinkage extent different from the first shrinkage extent;

forming a heterogeneous material by combining the first homogeneous component and the second homogeneous component;

forming the plurality of apertures in the heterogenous material; and

shrinking at least one of the first homogeneous component and the second homogeneous component to form the structured heterogeneous material.

23. The method of claim 22, wherein the apertures each have a diameter of about 100 microns to about 10,000 microns.

24. The method of claim 22, wherein the apertures are formed by producing a plurality of slits through the heterogeneous material, and opening each slit to form a corresponding aperture.

25. The method of claim 22, wherein expanded metal plates produce the slits in the heterogeneous material.

26. The method of claim 22, wherein the slits are formed in one of a machine direction, a cross machine direction and an angular direction.

27. The method of claim 22, further comprising the step of shrinking the first homogeneous component relative to the second homogeneous component to produce the structured heterogeneous material.

28. The method of claim 22, further comprising the step of shrinking the second homogeneous component relative to the first homogeneous component to produce the structured heterogeneous material.

29. A method of producing a material having a structure for accommodating passage of fluids through the material, the method comprising the steps of:

forming a material having a first component with a first shrinkage extent and a second component with a second shrinkage extent different from the first shrinkage extent;

applying a plurality of slits through the material; and

heating the material to shrink at least one of the first component and the second component to produce a structure, whereby each slit opens to form an aperture.

30. The method of claim 29, further comprising the step of applying a topsheet to the material before heating the material, wherein the topsheet has a shrinkage extent different from the first shrinkage extent and the second shrinkage extent.

31. The method of claim 29, wherein the topsheet comprises one of a film and a meltspun fabric.

32. A structured material having a plurality of apertures, the structured material comprising:

a first component having a first shrinkage extent;

a second component having a second shrinkage extent different from the first shrinkage extent; and a plurality of apertures formed in the structured material,

wherein at least one of the first component and the second component is shrinkable to form the structured material.

33. The structured material of claim 32, wherein the first component forms a first layer and the second component forms a second layer, the second layer bonded to the first layer.

34. The structured material of claim 32, wherein the second layer shrinks relative to the first layer.

35. The structured material of claim 32, wherein the first component comprises a nonwoven web.

36. The structured material of claim 32, wherein the second component comprises a film.

37. The structured material of claim 32, wherein the first component is shrinkable

38. The structured material of claim 32, wherein the first component comprises a polyethylene copolymer and the second component comprises a polypropylene polymer.

39. The structured material of claim 32, wherein the first component is shrinkable relative to the second component to form the structured material.

40. The structured material of Claim 32, comprising a personal care absorbent product.

41. The structured material of Claim 32, comprising one of a spacer layer, a fastener, a filter medium, an air filter, a liquid filter, a facemask, and a wipe.